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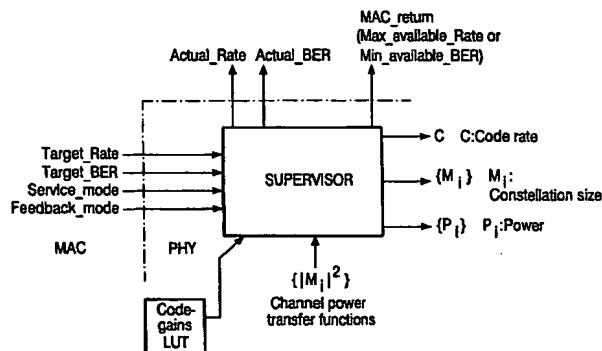
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(54) Title: TRANSMISSION POWER OPTIMIZATION IN OFDM WIRELESS COMMUNICATION SYSTEM



(57) Abstract: A method for minimizing processing and transmission power in a flexible and bidirectional OFDM wireless communication system including a MAC layer and a PHY layer, said PHY layer including a supervisor unit controlling in real time the performance of the PHY layer is disclosed. The method comprises feeding a first set of input data as to the QoS requirements at the PHY layer from the MAC layer to the supervisor unit comprising a Target Rate (required information rate), a Target BER (required Bit Error Rate) and a Max Delay (max tolerable delay); feeding a second set of input data including channel power transfer functions $H = (|H_i|^2)$ (index i refers to the i th sub-carrier) from PHY layer to the supervisor unit; processing the first and second set of input data for minimizing processing and transmission power in a wireless communication network system; and outputting N , modulation and coding parameters and transmission power parameters to the PHY layer. The coding parameters and transmission power parameters to the PHY layer include C : Code rate data; B : Block length data; n : data as to the number of decoding iterations; $M = (M_i)$: data as to a set of codes to specify the generally different constellations adopted for the different sub-channels (e.g. $M_i=0$ means that the i th sub-channel is OFF, different values specify constellation types in the pre-defined available set); and $P = (P_i)$: data as to a set of the generally different transmission powers adopted for the different sub-channels (e.g. $P_i=0$ means that the i th sub-channel is OFF). The method is performed in a wireless communication system, in particular in a supervisor unit.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.